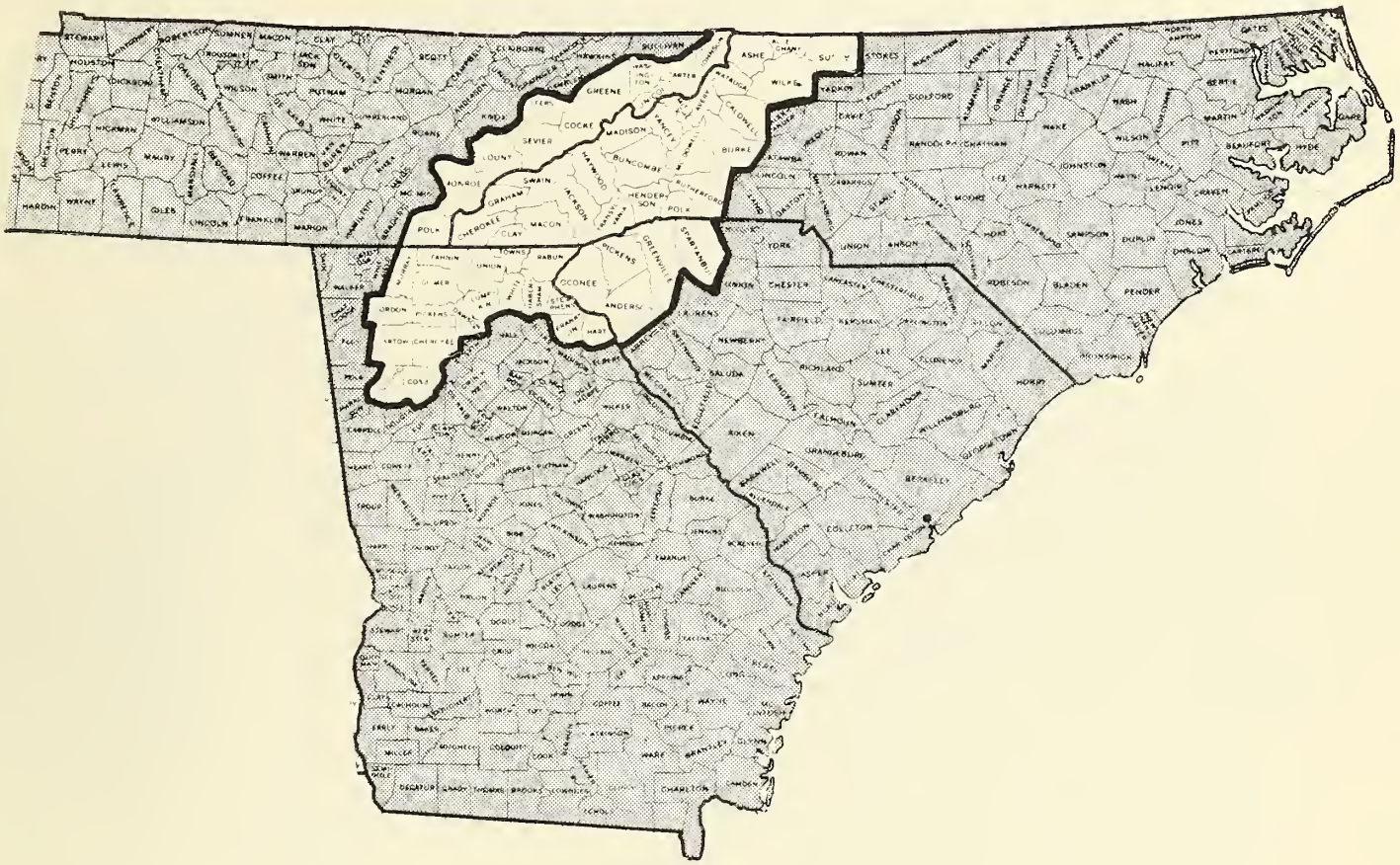
SOIL SURVEY INTERPRETATIONS FOR WOODLANDS

IN THE

SOUTHERN BLUE RIDGE AREA

OF

GEORGIA, NORTH CAROLINA, SOUTH CAROLINA, AND TENNESSEE



PROGRESS REPORT W-12 - - - - JULY 1969

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Fort Worth, Texas

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USDA-SCS-FORT WORTH, TEX. 1969

This report contains interpretations of soil surveys for woodland use and management in the Southern Blue Ridge Area of Georgia, North Carolina, South Carolina, and Tennessee. The purpose is to provide currently available knowledge about soils as they relate to the establishment, growth, management, and harvesting of wood crops for the use of foresters, agricultural workers, woodland owners, and woodland managers. The information will be used by the Soil Conservation Service and cooperating agencies in the development of technical guides, soil handbooks, and published soil survey reports.

Field information was gathered by teams of foresters and soil scientists. Representatives of Federal and State agencies, the woodusing industry, and others cooperated in gathering field data. The interpretations presented herein are made for use with soil surveys.

Table 2, SOIL RATINGS FOR WOODLAND USE, includes some evaluations for individual soils. The soil series listed are those defined according to the current soil classification system and includes portions of soil associations mapped in low intensity surveys. In column one (1) erosion and texture phases were consolidated within a soil series where no differences in productivity, species suitability, or management problems existed.

Column two (2) includes a list of some of the commercially-important tree species which are adapted to the soil in column one. These are the tree species which woodland managers generally favor in intermediate or improvement cuttings, after considering the form and vigor of individual trees. Priority between species will be influenced by local marketability and the owners' objectives, as well as the quality of wood products from a given species.

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Column three (3) indicates the average site index for the most important species listed in column two. The standard deviation is shown as a plus or minus figure (±) for each species where five or more plots were taken on the soils listed in column one. The site index curves used for each tree species are shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. An asterisk (*) following the site index rating indicates the rating is an estimate based on the same species on a similar soil, or by comparison with another species on the same soil. Site index is the average height of dominant trees at age 30 for cottonwood, age 35 for sycamore, and age 50 for all other species.

Column four (4) indicates the range of site index of the most important tree species in column two. The range of site index values is dependent on soil physical conditions, aeration, and nutrient and moisture availability during the growing season.

Column five (5) evaluates the potential erosion hazard of the soil in woodland use following cutting operations, or where the soil is exposed along roads, trails, firebreaks, or log-yarding areas. A rating of slight indicates that problems of erosion control are unimportant. A rating of moderate indicates some attention must be given to prevent unnecessary soil erosion. A rating of severe indicates that intensive treatments, or special equipment and methods of operation should be planned to minimize soil erosion. The potential erosion hazard is based on slope, soil depth, and erodibility, and soil loss tolerance.

Column six (6) includes evaluation of equipment restrictions. Ratings reflect limitations in the use of equipment for managing or harvesting the tree crop. A rating of slight indicates equipment use is seldom limited in

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kind or time of year. A rating of moderate indicates a need for modified equipment or seasonal restrictions due to slope, stones, obstructions, soil wetness, flooding, or overflows. A rating of severe indicates the need for specialized equipment due to one or more of the factors listed above.

Column seven (7) indicates the degree of expected seedling mortality during the first two growing seasons after planting or seeding. Normal rainfall, adequate site preparation, good planting stock, proper planting methods, and appropriate protection and cultivation are assumed. A rating of slight indicates that unsatisfactory survival on less than 25 percent of the area is likely. A rating of moderate indicates that unsatisfactory survival is likely on 25 to 50 percent of the area planted. A rating of severe indicates that unsatisfactory survival is likely on more than 50 percent of the area.

Column eight (8) lists several suitable tree species for planting on the soil named in column one. The list may include some species which do not normally occur in native stands on the designated soil or in this physiographic area, as well as some of the important species listed in column two.

Column nine (9) shows the ordination of the soils into a woodland suitability group. A woodland suitability group is made up of kinds of soils that are capable of producing similar kinds of wood crops, that need similar management to produce these crops, and that have about the same potential productivity. The ordination system and the suitability group symbols are explained in the following paragraphs.

The first element of the group symbol indicates the woodland suitability

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class. It expresses site quality by an arabic numeral ranging from 1 to 5, with class 1 the highest in potential productivity, followed by class 2, 3, 4, and 5. It is based on the average site index of one or more indicator forest types or tree species, as shown in Table 1, GUIDE FOR WOODLAND SUITABILITY CLASSES. The indicator species are underscored in column two of Table 2.

The second element in the symbol indicates the suitability subclass. It expresses selected soil properties that cause moderate to severe hazards or limitations in woodland use or management, by one of the following lower case arabic letters:

Subclass x (stoniness or rockiness). Soils having restrictions or limitations for woodland use or management due to stones or rocks.

Subclass w (excessive wetness). Soils in which excessive water, either seasonally or year long, causes significant limitations for woodland use or management. These soils have restricted drainage, high water tables, or overflow hazards which adversely affect either stand development or management.

Subclass d (restricted rooting depth). Soils with restrictions or limitations for woodland use or management due to restricted rooting depths. Soils shallow to hard rock, hardpan, or other layers in the soil that restrict roots are examples.

Subclass c (clayey soils). Soils having restrictions or limitations for woodland use or management due to the kind or amount of clay in the upper portion of the soil profile.

Subclass s (sandy soils). Sandy soils with little or no textural B horizons and having moderate to severe restrictions or limitations for

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woodland use or management. These soils impose equipment limitations, have low moisture-holding capacity, and normally are low in available plant nutrients.

Subclass f (fragmental or skeletal soils). Soils with restrictions or limitations for woodland use or management due to large amounts of coarse fragments in the profile over 2 mm and less than 10 inches, but includes flaggy soils.

Subclass r (relief or slope steepness). Soils with restrictions or limitations for woodland use or management due to steepness of slope.

Subclass o (slight or no limitations). Soils with no significant restrictions or limitations for woodland use or management.

Some kinds of soil may have more than one set of subclass characteristics. Priority in placing each kind of soil into a subclass is in the order that the subclass characteristics are listed above.

The third element in the symbol indicates the degree of hazards or limitations, and the general suitability of the soils for certain kinds of trees. The three management problems considered here are: (1) erosion hazard, (2) equipment restrictions, and (3) seedling mortality.

The numeral 1 indicates soils with no to slight management problems, and they are best suited for needleleaf trees.

The numeral 2 indicates soils with one or more moderate management problems, and they are best suited for needleleaf trees.

The numeral 3 indicates soils with one or more severe management problems, and they are best suited for needleleaf trees.

The numeral 4 indicates soils with no to slight management problems, and they are best suited for broadleaf trees.

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The numeral 5 indicates soils with one or more moderate management problems, and they are best suited for broadleaf trees.

The numeral 6 indicates soils with one or more severe management problems, and they are best suited for broadleaf trees.

The numeral 7 indicates soils with no to slight management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 8 indicates soils with one or more moderate management problems, and they are suitable for either needleleaf or broadleaf trees.

The numeral 9 indicates soils with one or more severe management problems, and they are suitable for either needleleaf or broadleaf trees.

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TABLE 1 - GUIDE FOR WOODLAND SUITABILITY CLASSES
IN THE SOUTHERN BLUE RIDGE AREA

Indicator Forest Type or Species		1 Very High	2 High	3 Moderately High	4 Moderate	5 Low
		Site Index				
Cottonwood	(1)	106+	96-105	86-95	76-85	75-
Yellow-poplar	(2)	106+	96-105	86-95	76-85	75-
Sweetgum	(3)	96+	86-95	76-85	66-75	65-
Water oaks	(4)	96+	86-95	76-85	66-75	65-
Eastern white pine	(5)	96+	86-95	76-85	66-75	65-
Loblolly pine	(6)	96+	86-95	76-85	66-75	65-
Shortleaf pine	(6)	86+	76-85	66-75	56-65	55-
Upland oaks	(7)	86+	76-85	66-75	56-65	55-
Eastern redcedar	(8)	66+	56-65	46-55	35-45	35-
American sycamore	(9)	106+	96-105	86-95	76-85	75-

(1) Broadfoot, W. M., 1960, Field Guide for Evaluating Cottonwood Sites, USFS Occ. Paper 178 (Fig. 4).
(2) Doolittle, W. T., 1957, Site Index Curves for Yellow-poplar-Southern Appalachians.
(3) Broadfoot, W. M., 1959, Guide for Evaluating Sweetgum Sites, USFS Occ. Paper 176 (Fig. 4).
(4) Broadfoot, W. M., 1963, Guide for Evaluating Water Oak Sites in the Mid-South, USFS Res. Paper SO-1 (Fig. 4).
(5) Doolittle, W. T., 1960, Site Index Curves for Eastern White Pine in the Southern Appalachians, SE For. Expmt Sta. Res. Note 141.
(6) Coile, T. S. and F. X. Schumacher, Jour. For. 53:432-435 (Fig. 4 and 8).
(7) Olson, D. G., 1959, Site Curves for Upland Oaks in the Southern Appalachians, SE For. Expmt. Sta. Res. Note 125.
(8) TVA 1948, Site Curves, Eastern Redcedar, Tennessee Valley.
(9) Briscoe, C. B. and M. D. Ferrill, 1958, Forestry Note 19, Louisiana State University.

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TABLE 2. SOIL RATINGS FOR WOODLAND USE

Blue Ridge Mountains Area

Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ashe fine sandy loam and loam, 0-15% slopes	Pitch pine Shortleaf pine Virginia pine White pine Yellow-poplar	57 56±8 65* 84±9 104	56-65 48-63 60-70 74-96 97-113	Slight	Slight	Slight 1/	Fraser fir 2/ Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/	3o1
15-45% slopes				Moderate	Moderate	Slight 1/		3r2
45+% slopes				Severe	Severe	Slight 1/		3r3
stony fine sandy loam and very stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		3x2
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		3x3
Avery fine sandy loam and loam, 0-15% slopes	Upland oaks White pine Yellow-poplar	80* 90* 95*	76-85 86-95 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Scotch pine 2/ White pine Yellow-poplar Norway spruce 2/	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony fine loam and stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Braddock fine sandy loam to clay loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	90* 77 71±11 76±6 93	86-95 70-80 60-82 69-82 86-95	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/	2o7
15-45% slopes	Upland oaks Yellow-poplar	80* 95*	76-85 90-100	Moderate	Moderate	Slight 1/	White pine Norway spruce 2/	2r8
stony fine sandy loam to very stony loam, 0-25% slopes				Slight	Moderate	Slight 1/	Black walnut Yellow-poplar	2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Brandywine loam, 0-15% slopes	Shortleaf pine Virginia pine White pine	65* 65* 80*	60-70 60-70 80*	Slight	Slight	Slight 1/	Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/	3o1
15-45% slopes	Upland oaks Yellow-poplar	60* 80*	56-65 76-85	Moderate	Moderate	Slight 1/	White pine Norway spruce 2/	3r2
45+% slopes				Severe	Severe	Slight 1/		3r3
stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		3x2
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		3x3

*Based on similar soil or comparative site index of other species on same soil.

1/ May be moderate on South aspects.

2/ For Christmas tree production

3/ Loblolly pine is not generally recommended for planting in the Blue Ridge Area in North Carolina, except in Clay, Cherokee, and Macon Counties, and there only at elevations below 2,000 feet.

4/ Shortleaf pine is generally not recommended for planting at elevations above 3,000 feet.

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	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Brevard sandy loam to silt loam, 0-15% slopes	Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	70* 80* 90* 75* 95*	66-75 76-85 86-95 90-100 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony sandy loam and stony silt loam, 0-25%slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Burton fine sandy loam and loam,0-15% slopes	Fraser fir Red spruce	unavailable unavailable		Slight	Slight	Slight	Fraser fir 2/ Red spruce	5o1
15-45% slopes				Moderate	Moderate	Moderate		5r2
45+% slopes				Severe	Severe	Moderate		5r3
stony fine sandy loam and very stony loam, 0-25% slopes				Slight	Moderate	Slight		5x2
25-45% slopes				Moderate	Moderate	Moderate		
45+% slopes				Severe	Severe	Moderate		5x3
Chandler fine sandy loam and silt loam, 0-15% slopes	Pitch pine Loblolly pine Shortleaf pine Virginia pine White pine Yellow-poplar	67 80* 70±12 68 81±14 80*	60-70 76-85 59-84 66-75 56-95 86-95	Slight	Slight	Slight 1/	Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ Virginia pine White pine	3o1
15-45% slopes				Moderate	Moderate	Slight 1/		3r2
45+% slopes				Severe	Severe	Slight 1/		3r3
stony fine sandy loam and stony silt loam,0-25% slopes				Slight	Moderate	Slight 1/		3x2
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		3x3
Chester fine sandy loam and loam,0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	90* 67 69±10 71±8 90±7 68±8 97±7	86-95 66-75 51-82 63-83 81-105 60-76 84-111	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
45+% slopes				Severe	Severe	Slight 1/		2r9
stony fine sandy loam and stony loam, 0-25%slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		2x9

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TABLE 2. SOIL RATINGS FOR WOODLAND USE

Blue Ridge Mountains Area

Soils	Potential Productivity: Tree Species	Potential Productivity: Avg. Site Index & Standard Deviation	Potential Productivity: Range of Site Index	Management Problems: Erosion Hazard	Management Problems: Equipment Restriction	Management Problems: Seedling Mortality	Species Suitable for Planting	Ordination: Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Clifton fine sandy loam to clay loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	90* 66 70* 75* 93±8 75* 93±8	86-95 60-70 66-75 70-80 81-106 70-80 81-106	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony fine sandy loam to stony clay loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Codorus fine sandy loam to silt loam, 0-2% slopes	Loblolly pine Shortleaf pine White pine Red oaks Sycamore Yellow-poplar	99±9 80* 84 90* 90* 100±5	90-108 76-85 78-90 86-95 86-95 89-105	Slight	Moderate	Slight	White ash Fraser fir 2/ Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Sycamore Yellow-poplar	1w8
Comus fine sandy loam to silt loam, 0-2% slopes	Loblolly pine Shortleaf pine White pine Red oaks Sycamore Black walnut Yellow-poplar	97±8 83 96 90* 90* - 102±8	89-105 80-90 83-109 86-95 86-95 - 93-115	Slight	Slight	Slight	White ash Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Sycamore Black walnut Yellow-poplar	1o7
Delanco fine sandy loam to silt loam, 0-15% slopes	Loblolly pine Shortleaf pine White pine Red oaks Yellow-poplar	90* 74 90* 80* 95*	86-95 70-80 86-95 76-85 90-100	Slight	Moderate	Slight	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2w8
Dyke loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	90* 81 80* 90* 80* 92	86-95 76-85 76-85 86-95 76-85 88-96	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Sycamore Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		

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Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Edneyville fine sandy loam or loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	90* 75* 75* 92±6 75* 99±9	86-95 70-80 70-80 83-101 70-80 88-111	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
45+% slopes				Severe	Severe	Slight 1/		2r9
stony fine sandy or stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		2x9
Elioak fine sandy loam to silt loam, 0-15% slopes	Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	70* 75* 89 75* 95*	66-75 70-80 86-95 70-80 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
45+% slopes				Severe	Severe	Slight 1/		2r9
stony fine sandy loam to stony silt loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		2x9
Elsinboro fine sandy loam to silt loam, 0-15% slopes	Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	75* 80* 90* 75* 95*	70-80 76-85 86-95 70-80 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
Fannin fine sandy loam to clay loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	85* 65±11 73±8 85±9 75* 95*	80-90 50-85 63-81 73-98 70-80 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
Fletcher loam and silt loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	85* 67 68 75* 92 70* 92	80-90 65-75 66-69 70-80 82-101 66-75 74-107	Slight	Slight	Slight 1/	Fraser fir 2/ Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
45+% slopes				Severe	Severe	Slight 1/		2r9

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Soils	Potential Productivity: Tree Species	Potential Productivity: Avg. Site Index & Standard Deviation	Potential Productivity: Range of Site Index	Management Problems: Erosion Hazard	Management Problems: Equipment Restriction	Management Problems: Seedling Mortality	Species Suitable for Planting	Ordination: Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Glenelg loam and silt loam, 0-15 slopes	Shortleaf pine	70	66-75	Slight	Slight	Slight 1/	Fraser fir 2/	2o7
	Virginia pine	75*	70-80				Northern red oak	
	White pine	90*	86-95				Red pine	
	Upland oaks	75*	70-80				Scotch pine 2/	
15-45% slopes	Yellow-poplar	95*	90-100	Moderate	Moderate	Slight 1/	Shortleaf pine 4/	2r8
							White pine	
45+% slopes				Severe	Severe	Slight 1/	Norway spruce 2/	2r9
							Yellow-poplar	
Hatboro fine sandy loam and silt loam, 0-2% slopes	Loblolly pine	100+9	91-109	Slight	Severe	Severe	Green ash	1w9
	Red oaks	85*	80-90				Loblolly pine 3/	
	Sweetgum	91+8	83-99				White pine	
	Yellow-poplar	95	86-103				Sycamore	
							Yellow-poplar	
	(see footnote 5)						(see footnote 6)	
Hayesville fine sandy loam and loam, 0-15% slopes	Loblolly pine	90*	86-95	Slight	Slight	Slight 1/	Fraser fir 2/	2o7
	Pitch pine	81	76-85				Loblolly pine 3/	
	Shortleaf pine	66+8	50-82				Scotch pine 2/	
	Virginia pine	70+9	54-85				Shortleaf pine 4/	
	White pine	86+10	73-101				White pine	
15-45% slopes	Upland oaks	70*	66-75	Moderate	Moderate	Slight 1/	Norway spruce 2/	2r8
	Yellow-poplar	93+8	79-104				Yellow-poplar	
stony fine sandy loam to very stony loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
clay loam to fine sandy clay loam, eroded, 0-15% slopes	Loblolly pine	80*	76-85	Slight	Moderate	Slight to Moderate	Loblolly pine 3/	2c2
	Pitch pine	79	76-85				Scotch pine 2/	
	Shortleaf pine	73+9	52-88				Virginia pine	
	Virginia pine	76	74-81				White pine	
	White pine	86+10	80-102					
15-25% slopes				Moderate	Severe	Slight to Moderate		2c3
25-45% slopes				Severe	Severe	Slight to Moderate		
Haywood fine sandy loam and loam, 0-15% slopes	Virginia pine	80*	76-85	Slight	Slight	Slight 1/	White ash	2o7
	White pine	90*	86-95				Fraser fir 2/	
	Upland oaks	80*	76-85				Northern red oak	
	Yellow-poplar	100*	96-105				Loblolly pine 3/	
							Scotch pine 2/	
15-45% slopes				Moderate	Moderate	Slight 1/	Shortleaf pine 4/	2r8
							White pine	
							Norway spruce	
							Black walnut	
							Yellow-poplar	

5/ Potential productivity is attainable only on soils with adequate surface drainage.
6/ Tree planting is not usually feasible on ponded areas of these soils.

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TABLE 2. SOIL RATINGS FOR WOODLAND USE

Blue Ridge Mountains Area

Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Manor loam and silt loam, 0-15% slopes	Shortleaf pine White pine Yellow-poplar	60* 80* 74*	56-75 76-85 68-79	Slight	Slight	Slight 1/	Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/	3o1
15-45% slopes				Moderate	Moderate	Slight 1/		3r2
45+% slopes				Severe	Severe	Slight 1/		3r3
Myersville silt loam, 0-15% slopes	Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	70* 80* 88 70* 95*	66-85 76-85 86-95 66-85 90-100	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony silt loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Porters very fine sandy loam or silt loam, 0-15% slopes	Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	70* 80* 88+10 75* 101+8	66-75 76-85 79-102 70-80 92-118	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Black walnut Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
45+% slopes				Severe	Severe	Slight 1/		2r9
stony fine sandy loam to very stony silt loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		2x9
Rabun loam to clay loam 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	90* 71+10 62+7 93+4 70* 100*	86-95 54-83 57-71 87-95 66-75 96-105	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Norway spruce 2/ Yellow-poplar	2o7
15-45% slopes				Moderate	Moderate	Slight 1/		2r8
stony loam to stony clay loam, 0-25% slopes				Slight	Moderate	Slight 1/		2x8
25-45% slopes				Moderate	Moderate	Slight 1/		
Ramsey sandy loam and loam, 0-10% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	70* 72 62 65* 67	66-75 66-75 56-65 50-60 60-74	Slight	Slight	Moderate 7/	Loblolly pine 3/ Pitch pine Scotch pine 2/ Shortleaf pine 4/ White pine	4d2
10-15% slopes				Moderate	Moderate	Moderate 7/		
15+% slopes				Severe	Moderate to Severe	Moderate 7/		4d3
stony sandy loam and stony loam, 0-10% slopes				Slight	Moderate	Moderate 7/		4x2
10-15% slopes				Moderate	Moderate	Moderate 7/		
15+% slopes				Severe	Severe	Moderate 7/		4x3

7/ May be severe on South aspects.

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Fort Worth, Texas
(File Code - SOILS)

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Blue Ridge Mountains Area

Soils	Potential Productivity			Management Problems			Species Suitable for Planting	Ordination
	Tree Species	Avg. Site Index & Standard Deviation	Range of Site Index	Erosion Hazard	Equipment Restriction	Seedling Mortality		Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rosman loamy sand to silt loam, 0-2% slopes	Shortleaf pine White pine Red oaks Sycamore Yellow-poplar	80* 100* 90* 95* 105	76-85 96-105 86-95 90-100 95-110	Slight	Slight	Slight	White ash Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ White pine Norway spruce 2/ Black walnut Yellow-poplar	1o7
Saluda sandy loam or loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine	85* 68 57 70*	80-90 66-75 54-71 66-75	Slight	Slight	Moderate	Fraser fir 2/ Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/	3d2
15-45% slopes	White pine Upland oaks Yellow-poplar	88 70* 85	78-100 66-75 80-90	Moderate	Moderate	Moderate	Virginia pine White pine	
45+% slopes				Severe	Severe	Moderate	Norway spruce 2/	3d3
stony sandy loam or stony loam, 0-25% slopes				Slight	Moderate	Moderate		3x2
25-45% slopes				Moderate	Moderate	Moderate		
45+% slopes				Severe	Severe	Moderate		3x3
Suncook sand and loamy sand, 0-6% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Sycamore Yellow-poplar	90* 70* 75* 90* - 106	86-95 66-75 70-80 86-95 - 101-111	Slight	Moderate	Moderate	Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Sycamore	2s8
Talladega loam and silt loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine	67 72 56±9 71	66-75 66-75 45-77 66-75	Slight	Slight	Slight 1/	Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ Virginia pine	3o1
15-45% slopes	White pine	84±8	74-94	Moderate	Moderate	Slight 1/	White pine	3r2
45+% slopes				Severe	Severe	Slight 1/		3r3
stony loam and stony silt loam, 0-25% slopes				Slight	Moderate	Slight 1/		3x2
25-45% slopes				Moderate	Moderate	Slight 1/		
45+% slopes				Severe	Severe	Slight 1/		3x3
Tate fine sandy loam and loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks	90* 75* 80* 90±9 80*	86-95 70-80 76-85 79-104 76-85	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/	2o7
15-25% slopes	Yellow-poplar	95±10	84-111	Moderate	Moderate	Slight 1/	White pine Norway spruce 2/	2r8
stony fine sandy loam and stony loam, 0-25% slopes				Slight	Moderate	Slight 1/	Black walnut Yellow-poplar	2x8

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Fort Worth, Texas
(File Code - SOILS)

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TABLE 2. SOIL RATINGS FOR WOODLAND USE

Blue Ridge Mountains Area

Soils	Potential Productivity: Tree Species	Potential Productivity: Avg. Site Index & Standard Deviation	Potential Productivity: Range of Site Index	Management Problems: Erosion Hazard	Management Problems: Equipment Restriction	Management Problems: Seedling Mortality	Species Suitable for Planting	Ordination: Woodland Suitability Group
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Toxaway loam and silt loam, 0-2% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Red oaks Yellow-poplar (See footnote 5/)	85* 71 75* 80* 93 75* 100*	80-90 66-75 70-80 76-85 86-95 70-80 96-105	Slight	Severe	Severe	Green ash White ash Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/ White pine Sycamore Yellow-poplar (See footnote 6/)	2w9
Transylvania very fine sandy loam to silt loam, 0-3% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Red oaks Sycamore Black walnut Yellow-poplar	85* 75* 80* 87 80* - - 100*	80-90 70-80 76-85 86-95 76-85 - - 96-105	Slight	Slight	Slight	White ash Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ White pine Norway spruce 2/ Sycamore Black walnut Yellow-poplar	2o7
Tusquitee fine sandy loam to silt loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks	90* 79+7 81+6 91+9 80*	86-95 70-89 73-90 81-108 76-85	Slight	Slight	Slight	White ash Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/	2o7
15-45% slopes	Sycamore Black walnut Yellow-poplar	- - 104+8	- - 93-122	Moderate Slight	Moderate Moderate	Slight Slight	Shortleaf pine 4/ White pine Norway spruce 2/ Sycamore Black walnut Yellow-poplar	2r8 2x8
stony fine sandy loam to stony silt loam, 0-25% slopes								
25-45% slopes				Moderate	Moderate	Slight		
Watauga fine sandy loam to silt loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Upland oaks	85* 70* 75* 86+8 70*	80-90 66-75 70-80 70-98 66-75	Slight	Slight	Slight 1/	Fraser fir 2/ Northern red oak Loblolly pine 3/ Scotch pine 2/ Shortleaf pine 4/	2o7
15-45% slopes	Yellow-poplar	94+6	89-102	Moderate	Moderate	Slight 1/	White pine Norway spruce 2/	2r8
45+% slopes				Severe	Severe	Slight 1/	Black walnut Yellow-poplar	2r9

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Table 3, SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY, is a summary of the most important interpretations for a woodland suitability group of soils.

Column one (1) includes the suitability group symbol and a brief description of the group of soils, including their important hazards and limitations for woodland use and management.

Column two (2) is a tabulation of the soils within each woodland suitability group.

Column three (3) is a list of some commercially-important tree species which occur on the soils in each suitability group.

Column four (4) shows the site class (site index rounded off to the nearest 10-foot interval) for the most important tree species listed in column three.

Column five (5) lists some of the most important tree species which are suitable for planting or direct seeding on the soils in each suitability group.

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TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
1o7 Very highly productive soils with no serious management problems. Well suited for hardwoods and pines, or other conifers.	Comus fine sandy loam to silt loam, 0-2% slopes Rosman loamy sand to silt loam, 0-2% slopes	Loblolly pine Shortleaf pine White pine Red oaks Sycamore Black walnut Yellow-poplar	100 80 100 90 90 - 100-110	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Sycamore Black walnut Yellow-poplar
1w8 Very highly productive soils with moderate equipment limitations associated with excess water. Well suited for hardwoods and pines, or other conifers.	Codorus fine sandy loam to silt loam, 0-2% slopes	Loblolly pine Shortleaf pine White pine Red oaks Sycamore Yellow-poplar	100 80 90 90 90 100	Green ash White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Sycamore Yellow-poplar
1w9 Soils with very high potential productivity; severe equipment limitations and seedling mortality associated with excess water; best suited for water-tolerant hardwoods and pines.	Hatboro fine sandy loam and silt loam, 0-2% slopes	Loblolly pine Red oaks Sweetgum Yellow-poplar (see footnote 4)	100 80-90 90 90-100	Green ash Loblolly pine 2/ White pine Sycamore Yellow-poplar (see footnote 5)
2o7 Soils with high productivity; no serious management problems; well suited for hardwoods and pines, or other conifers.	Avery fine sandy loam and loam, 0-15% slopes Braddock fine sandy loam to clay loam, 0-15% slopes Brevard sandy loam to silt loam, 0-15% slopes Chester fine sandy loam to silt loam, 0-15% slopes Clifton fine sandy loam to clay loam, 0-15% slopes Dyke loam, 0-15% slopes Edneyville fine sandy loam to loam, 0-15% slopes Elioak fine sandy loam to silt loam, 0-15% slopes Elsinboro fine sandy loam to silt loam, 0-15% slopes Fannin fine sandy loam to clay loam, 0-15% slopes Fletcher loam and silt loam, 0-15% slopes Glenelg silt loam and loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80-90 70 70-80 70-80 90 70-80 100+	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Black walnut Yellow-poplar Sycamore

(continued)

1/ For Christmas tree production.
2/ Loblolly pine is not generally recommended for planting in Blue Ridge area in North Carolina, except in Clay, Cherokee, and Macon Counties, and there only at elevations below 2,000 feet.
3/ Shortleaf pine is generally not recommended for planting at elevations above 3,000 feet.
4/ Potential productivity is attainable only on soils with adequate surface drainage.
5/ Tree planting is not usually feasible on ponded areas of these soils.

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
2o7 (continued)	Hayesville fine sandy loam to loam, 0-15% slopes Haywood fine sandy loam to loam, 0-15% slopes Myersville silt loam, 0-15% slopes Porters very fine sandy loam to silt loam, 0-15% slopes Rabun loam to clay loam, 0-15% slopes Tate fine sandy loam and loam, 0-15% slopes Transylvania very fine sandy loam to silt loam, 0-15%slopes Tusquitee fine sandy loam to silt loam, 0-15% slopes Watauga fine sandy loam to silt loam, 0-15% slopes			
2w8 Soils with high productivity; moderate equipment limitations due to seasonal wetness; suited for hardwoods and/or conifers.	Delanco fine sandy loam to silt loam, 0-15% slopes	Loblolly pine Shortleaf pine White pine Red oaks Yellow-poplar	90 70 90 80 90	Fraser fir 1/ Northern red oak Loblolly pine Scotch pine 1/ Shortleaf pine White pine Black walnut Yellow-poplar Sycamore
2x8 Soils with high productivity; moderate equipment limitations due primarily to stoniness; moderate erosion hazard on slopes from 15 to 45%; suited for hardwoods and pines, or other conifers.	Avery stony fine sandy loam and stony loam, 0-45% slopes Braddock stony fine sandy loam to stony silt loam, 0-45% slopes Brevard stony sandy loam to stony silt loam,0-45% slopes Chester stony fine sandy loam to stony loam,0-45% slopes Clifton stony fine sandy loam to stony clay loam,0-45%slopes Dyke stony loam, 0-45% slopes Edneyville fine sandy loam to loam, 0-45% slopes Elioak stony fine sandy loam to stony silt loam, 0-45% slopes Hayesville stony fine sandy loam to very stony loam, 0-45% slopes Myersville stony silt loam, 0-45% slopes Porters stony fine sandy loam to very stony silt loam, 0-45% slopes Rabun stony loam to stony clay loam, 0-45% slopes Tate stony fine sandy loam and stony loam, 0-45% slopes Tusquitee stony fine sandy loam to stony silt loam, 0-45% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80-90 70 70 70-80 90 70-80 100+	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Yellow-poplar

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
2x9 Soils with high productivity; severe equipment limitations due to stoniness and slope steepness; suited for hardwoods and pines, or other conifers.	Chester stony fine sandy loam to stony loam, 45+% slopes Edneyville stony fine sandy loam to stony loam, 45+% slopes Elioak stony fine sandy loam to stony silt loam, 45+% slopes Porters stony fine sandy loam to very stony silt loam, 45+% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80-90 70 70 70-80 90 70-80 100+	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Yellow-poplar
2w9 Soils with high potential productivity; severe equipment limitations and severe seedling mortality associated with excess water; suitable for water-tolerant hardwoods and pines.	Toxaway loam and silt loam, 0-2% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Red oaks Yellow-poplar (see footnote 4)	80-90 70 70-80 80 90+ 70-80 100	Green ash White ash Northern red oak Loblolly pine 2/ Shortleaf pine White pine Sycamore Yellow-poplar (see footnote 5)
2s8 Soils with high productivity; moderate equipment limitations and seedling mortality associated with sandy profiles; suitable for pines or hardwoods.	Suncook sand and loamy sand, 0-6% slopes	Loblolly pine Shortleaf pine Virginia pine White pine Sycamore Yellow-poplar	90 70 70-80 90 - 100-110	Loblolly pine 2/ Scotch pine 1/ Virginia pine White pine Sycamore
2c2 Soils with high productivity; moderate equipment limitations and slight to moderate seedling mortality associated with high clay content in the upper profile; best suited for pines.	Hayesville clay loam to fine sandy clay loam, eroded, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	80-90 80 70+ 70-80 90-	Loblolly pine 2/ Scotch pine 1/ Virginia pine White pine
2c3 Soils with high productivity; severe equipment limitations; moderate to severe erosion hazard and slight to moderate seedling mortality associated with high clay content in the upper profile; best suited for pines.	Hayesville clay loam to fine sandy clay loam, 15-45% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	80-90 80 70+ 70-80 90-	Loblolly pine 2/ Scotch pine 1/ Virginia pine White pine
2r8 Soils with high productivity; moderate equipment limitations and erosion hazard due to steepness of slopes; well suited for hardwoods and pines, or other conifers.	Avery fine sandy loam and loam, 15-45% slopes Braddock fine sandy loam to clay loam, 15-45% slopes Brevard sandy loam to silt loam, 15-45% slopes Chester fine sandy loam to loam, 15-45% slopes Clifton fine sandy loam to clay loam, 15-45% slopes Dyke loam, 15-45% slopes Edneyville fine sandy loam to loam, 15-45% slopes Elioak fine sandy loam to silt loam, 15-45% slopes Elsinboro fine sandy loam to silt loam, 15-45% slopes Fannin fine sandy loam to clay loam, 15-45% slopes Fletcher loam and silt loam, 15-45% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80-90 70 70-80 70-80 90 70-80 100+	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Black walnut Yellow-poplar

(continued)

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
2r8 (continued)	Glenelg silt loam and loam, 15-45% slopes Hayesville fine sandy loam to loam, 15-45% slopes Haywood fine sandy loam to loam, 15-45% slopes Myersville silt loam, 15-45% slopes Porters very fine sandy loam to silt loam, 15-45% slopes Rabun loam to clay loam, 15-45% slopes Tate fine sandy loam and loam 0-45% slopes Tusquitee fine sandy loam to silt loam, 0-45% slopes Watauga fine sandy loam to silt loam, 0-45% slopes			
2r9 Soils with high productivity; severe equipment limitations and severe erosion hazard due to slope steepness; suitable for hardwoods and pines, or other conifers.	Chester fine sandy loam to loam, 45+% slopes Edneyville fine sandy loam to loam, 45+% slopes Elioak fine sandy loam to silt loam, 45+% slopes Fletcher loam and silt loam, 45+% slopes Glenelg loam and silt loam, 45+% slopes Porters very fine sandy loam to silt loam, 45+% slopes Watauga fine sandy loam to silt loam, 45+% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80-90 70 70-80 70-80 90 70-80 100+	White ash Fraser fir 1/ Northern red oak Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ White pine Norway spruce 1/ Yellow-poplar
3o1 Soils with moderately high productivity; no serious management problems; best suited for pines, or other conifers.	Ashe fine sandy loam to loam, 0-15% slopes Brandywine loam, 0-15% slopes Chandler fine sandy loam to silt loam, 0-15% slopes Manor loam and silt loam, 0-15% slopes Talladega loam and silt loam, 0-15% slopes	Loblolly pine Shortleaf pine Virginia pine White pine	80 60-70 70 80+	Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ Virginia pine White pine Norway spruce 1/
3x2 Soils with moderately high productivity; moderate equipment limitations due primarily to stoniness; moderate erosion hazard on slopes from 15 to 45%; best suited for pines, or other conifers.	Ashe stony fine sandy loam and very stony loam; 0-45% slopes Brandywine stony loam, 0-45% slopes Chandler stony fine sandy loam to stony silt loam, 0-45% slopes Saluda stony loam, 0-45% slopes Talladega stony loam and stony silt loam, 0-45% slopes	Loblolly pine Shortleaf pine Virginia pine White pine	80 60-70 70 80+	Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ Virginia pine White pine Norway spruce 1/
3x3 Soils with moderately high productivity; severe equipment limitations due to stoniness and slope steepness; severe erosion hazard; best suited for pines, or other conifers.	Ashe stony fine sandy loam to stony loam, 45+% slopes Brandywine stony loam, 45+% slopes Chandler stony fine sandy loam to stony silt loam, 45+% slopes Saluda stony loam, 45+% slopes Talladega stony loam and stony silt loam, 45+% slopes	Loblolly pine Shortleaf pine Virginia pine White pine	80 60-70 70 80+	Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ Virginia pine White pine Norway spruce 1/

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
3d2 Shallow soils with moderately high productivity; moderate seedling mortality and slight to moderate erosion hazard and equipment limitations; best suited for conifers.	Saluda sandy loam and loam, 0-45% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80 70 60 70 90 70 80	Fraser fir 1/ Loblolly pine Virginia pine Scotch pine 1/ Shortleaf pine Norway spruce 1/
3d3 Shallow soils with moderately high productivity on steep slopes, severe erosion hazard and equipment limitations; best suited for conifers	Saluda sandy loam or loam, 45+% slope	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine Upland oaks Yellow-poplar	80 70 60 70 90 70 80	Fraser fir 1/ Loblolly pine Virginia pine Scotch pine 1/ Shortleaf pine Norway spruce 1/
3r2 Soils with moderately high productivity; moderate equipment limitations and erosion hazard due to slope steepness; best suited for pines or other conifers.	Ashe fine sandy loam to loam, 15-45% slopes Brandywine loam, 15-45% slopes Chandler fine sandy loam to silt loam, 15-45% slopes Manor silt loam and loam, 15-45% slopes Talladega loam and silt loam, 15-45% slopes	Loblolly pine Shortleaf pine Virginia pine White pine	80 60-70 70 80+	Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ Virginia pine White pine Norway spruce 1/
3r3 Soils with moderately high productivity; severe equipment limitations and severe erosion hazard due to slope steepness; best suited for pines, or other conifers.	Ashe fine sandy loam to loam, 45+% slopes Brandywine loam, 45+% slopes Chandler fine sandy loam to silt loam, 45+% slopes Manor loam and silt loam, 45+% slopes Talladega loam and silt loam, 45+% slopes	Loblolly pine Shortleaf pine Virginia pine White pine	80 60-70 70 80+	Loblolly pine 2/ Scotch pine 1/ Shortleaf pine 3/ Virginia pine White pine Norway spruce 1/
4x2 Shallow soils with moderate productivity; moderate equipment limitations, seedling mortality, and windthrow hazard due to stoniness, slope steepness or shallowness; best suited for pines.	Ramsey stony sandy loam and stony loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	70 70 60 60-70 70	Loblolly pine 2/ Pitch pine Scotch pine 1/ Shortleaf pine 3/ White pine
4x3 Shallow soils with moderate productivity; severe equipment limitations and erosion hazard; moderate seedling mortality and windthrow hazard due to stoniness, slope steepness or shallowness; best suited for pines.	Ramsey stony sandy loam and stony loam, 15+% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	70 70 60 60-70 70	Loblolly pine 2/ Pitch pine Scotch pine 1/ Shortleaf pine 3/ White pine
4d2 Shallow soils with moderate productivity; slight to moderate equipment limitations; slight to moderate erosion hazard; and moderate seedling mortality and windthrow hazard due to shallowness or slope steepness or both; best suited for pines.	Ramsey sandy loam and loam, 0-15% slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	70 70 60 60-70 70	Loblolly pine 2/ Pitch pine Scotch pine 1/ Shortleaf pine 3/ White pine

TABLE 3. SOIL GROUPINGS ACCORDING TO WOODLAND SUITABILITY

Blue Ridge Mountains Area

Woodland Suitability Group (Symbol and Description)	Soils	Productivity		Species Suitable for Planting
		Tree Species	Site Class	
(1)	(2)	(3)	(4)	(5)
4d3 Shallow soils with moderate productivity; moderate to severe equipment limitations; severe erosion hazard; moderate seedling mortality and windthrow hazard due to shallowness or slope steepness, or both; best suited for pines.	Ramsey sandy loam and loam, 15+%slopes	Loblolly pine Pitch pine Shortleaf pine Virginia pine White pine	70 70 60 60-70 70	Loblolly pine 2/ Pitch pine Shortleaf pine 3/ Scotch pine 1/ White pine
5o1 Soils with low productivity; no serious management problems; best suited for red spruce and Fraser fir because of high elevations.	Burton fine sandy loam and loam, 0-15% slopes	Fraser fir Red spruce	Unavailable Unavailable	Fraser fir 1/ Red spruce
5x2 Soils with low productivity; moderate equipment limitations due to stoniness; slight to moderate erosion hazard; best suited for red spruce and Fraser fir because of high elevations.	Burton stony fine sandy loam to very stony loam, 0-45% slopes	Fraser fir Red spruce	Unavailable Unavailable	Fraser fir 1/ Red spruce
5x3 Soils with low productivity; severe equipment limitations and severe erosion hazard due to stoniness and slope steepness; moderate seedling mortality; best suited to red spruce and Fraser fir because of high elevations.	Burton stony fine sandy loam to very stony loam, 45+% slopes	Fraser fir Red spruce	Unavailable Unavailable	Fraser fir 1/ Red spruce
5r2 Soils with low productivity; moderate equipment limitations and moderate erosion hazard due to slope steepness; moderate seedling mortality; best suited for red spruce and Fraser fir because of high elevations.	Burton fine sandy loam and loam, 15-45% slopes	Fraser fir Red spruce	Unavailable Unavailable	Fraser fir 1/ Red spruce
5r3 Soils with low productivity; severe equipment limitations and severe erosion hazard due to slope steepness; moderate seedling mortality; best suited for red spruce and Fraser fir because of high elevations.	Burton fine sandy loam and loam, 45+% slopes	Fraser fir Red spruce	Unavailable Unavailable	Fraser fir 1/ Red spruce